

§ 98.234

40 CFR Ch. I (7–1–11 Edition)

HHV = High heat value of the fuel from paragraphs (z)(8)(i), (z)(8)(ii) or (z)(8)(iii) of this section (units must be consistent with Fuel).

EF = Use 1.0×10^{-4} kg N₂O/mmBtu.

1×10^{-3} = Conversion factor from kilograms to metric tons.

(i) For fuels listed in Table C–1 of subpart C of this part, use the provided default HHV in the table.

(ii) For field gas or process vent gas, use 1.235×10^{-3} mmBtu/scf for HHV.

(iii) For fuels not listed in Table C–1 of subpart C of this part and not field gas or process vent gas, you must use the methodology set forth in the Tier 2 methodology described in subpart C of this part to determine HHV.

§ 98.234 Monitoring and QA/QC requirements.

The GHG emissions data for petroleum and natural gas emissions sources must be quality assured as applicable as specified in this section. Offshore petroleum and natural gas production facilities shall adhere to the monitoring and QA/QC requirements as set forth in 30 CFR 250.

(a) You must use any of the methods described as follows in this paragraph to conduct leak detection(s) of equipment leaks and through-valve leakage from all source types listed in § 98.233(k), (o), (p) and (q) that occur during a calendar year, except as provided in paragraph (a)(4) of this section.

(1) *Optical gas imaging instrument.* Use an optical gas imaging instrument for equipment leak detection in accordance with 40 CFR part 60, subpart A, § 60.18(i)(1) and (2) of the *Alternative work practice for monitoring equipment leaks*. Any emissions detected by the optical gas imaging instrument is a leak unless screened with Method 21 (40 CFR part 60, appendix A–7) monitoring, in which case 10,000 ppm or greater is designated a leak. In addition, you must operate the optical gas imaging instrument to image the source types required by this subpart in accordance with the instrument manufacturer's operating parameters.

(2) *Method 21.* Use the equipment leak detection methods in 40 CFR part 60, appendix A–7, Method 21. If using Method 21 monitoring, if an instrument reading of 10,000 ppm or greater is

measured, a leak is detected. Inaccessible emissions sources, as defined in 40 CFR part 60, are not exempt from this subpart. Owners or operators must use alternative leak detection devices as described in paragraph(a)(1) of this section to monitor inaccessible equipment leaks or vented emissions.

(3) *Infrared laser beam illuminated instrument.* Use an infrared laser beam illuminated instrument for equipment leak detection. Any emissions detected by the infrared laser beam illuminated instrument is a leak unless screened with Method 21 monitoring, in which case 10,000 ppm or greater is designated a leak. In addition, you must operate the infrared laser beam illuminated instrument to detect the source types required by this subpart in accordance with the instrument manufacturer's operating parameters.

(4) *Optical gas imaging instrument.* An optical gas imaging instrument must be used for all source types that are inaccessible and cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface.

(5) *Acoustic leak detection device.* Use the acoustic leak detection device to detect through-valve leakage. When using the acoustic leak detection device to quantify the through-valve leakage, you must use the instrument manufacturer's calculation methods to quantify the through-valve leak. When using the acoustic leak detection device, if a leak of 3.1 scf per hour or greater is calculated, a leak is detected. In addition, you must operate the acoustic leak detection device to monitor the source valves required by this subpart in accordance with the instrument manufacturer's operating parameters.

(b) You must operate and calibrate all flow meters, composition analyzers and pressure gauges used to measure quantities reported in § 98.233 according to the procedures in § 98.3(i) and the procedures in paragraph (b) of this section. You may use an appropriate standard method published by a consensus-based standards organization if such a method exists or you may use an industry standard practice. Consensus-based standards organizations

include, but are not limited to, the following: ASTM International, the American National Standards Institute (ANSI), the American Gas Association (AGA), the American Society of Mechanical Engineers (ASME), the American Petroleum Institute (API), and the North American Energy Standards Board (NAESB).

(c) Use calibrated bags (also known as vent bags) only where the emissions are at near-atmospheric pressures such that it is safe to handle and can capture all the emissions, below the maximum temperature specified by the vent bag manufacturer, and the entire emissions volume can be encompassed for measurement.

(1) Hold the bag in place enclosing the emissions source to capture the entire emissions and record the time required for completely filling the bag. If the bag inflates in less than one second, assume one second inflation time.

(2) Perform three measurements of the time required to fill the bag, report the emissions as the average of the three readings.

(3) Estimate natural gas volumetric emissions at standard conditions using calculations in § 98.233(t).

(4) Estimate CH₄ and CO₂ volumetric and mass emissions from volumetric natural gas emissions using the calculations in § 98.233(u) and (v).

(d) Use a high volume sampler to measure emissions within the capacity of the instrument.

(1) A technician following manufacturer instructions shall conduct measurements, including equipment manufacturer operating procedures and measurement methodologies relevant to using a high volume sampler, including positioning the instrument for complete capture of the equipment leak without creating backpressure on the source.

(2) If the high volume sampler, along with all attachments available from the manufacturer, is not able to capture all the emissions from the source then use anti-static wraps or other aids to capture all emissions without violating operating requirements as provided in the instrument manufacturer's manual.

(3) Estimate CH₄ and CO₂ volumetric and mass emissions from volumetric natural gas emissions using the calculations in § 98.233(u) and (v).

(4) Calibrate the instrument at 2.5 percent methane with 97.5 percent air and 100 percent CH₄ by using calibrated gas samples and by following manufacturer's instructions for calibration.

(e) Peng Robinson Equation of State means the equation of state defined by Equation W-41 of this section:

$$p = \frac{RT}{V_m - b} - \frac{a\alpha}{V_m^2 + 2bV_m - b^2} \quad (\text{Eq. W-41})$$

Where:

p = Absolute pressure.

R = Universal gas constant.

T = Absolute temperature.

V_m = Molar volume.

$$\begin{aligned}
 & \frac{0.45724R^2T_c^2}{P_c} \\
 = & \\
 & \frac{0.7780RT_c}{P_c} \\
 = & \\
 \alpha = & \left(1 + \left(0.37464 + 1.54226\omega - 0.26992\omega^2 \right) \left(1 - \sqrt{\frac{T}{T_c}} \right) \right)^2
 \end{aligned}$$

Where:

ω = Acentric factor of the species.

T_c = Critical temperature.

P_c = Critical pressure.

(f) Special reporting provisions

(1) *Best available monitoring methods.* EPA will allow owners or operators to use best available monitoring methods for parameters in § 98.233 Calculating GHG Emissions as specified in paragraphs (f)(2), (f)(3), and (f)(4) of this section. If the reporter anticipates the potential need for best available monitoring for sources for which they need to petition EPA and the situation is unresolved at the time of the deadline, reporters should submit written notice of this potential situation to EPA by the specified deadline for requests to be considered. EPA reserves the right to review petitions after the deadline but will only consider and approve late petitions which demonstrate extreme or unusual circumstances. The Administrator reserves the right to request further information in regard to all petition requests. The owner or operator must use the calculation methodologies and equations in § 98.233 Calculating GHG Emissions. Best available monitoring methods means any of the following methods specified in paragraph (f)(1) of this section:

(i) Monitoring methods currently used by the facility that do not meet the specifications of this subpart.

(ii) Supplier data.

(iii) Engineering calculations.

(iv) Other company records.

(2) *Best available monitoring methods for well-related emissions.* During January 1, 2011 through September 30, 2011,

owners and operators may use best available monitoring methods for any well-related data that cannot reasonably be measured according to the monitoring and QA/QC requirements of this subpart, and only where required measurements cannot be duplicated due to technical limitations after September 30, 2011. These well-related sources are:

(i) Gas well venting during well completions and workovers with hydraulic fracturing as specified in § 98.233(g).

(ii) Well testing venting and flaring as specified in § 98.233(l).

(3) *Best available monitoring methods for specified activity data.* During January 1, 2011 through September 30, 2011, owners or operators may use best available monitoring methods for activity data as listed below that cannot reasonably be obtained according to the monitoring and QA/QC requirements of this subpart, specifically for events that generate data that can be collected only between January 1, 2011 and September 30, 2011 and cannot be duplicated after September 30, 2011. These sources are:

(i) Cumulative hours of venting, days, or times of operation in § 98.233(e), (f), (g), (h), (l), (o), (p), (q), and (r).

(ii) Number of blowdowns, completions, workovers, or other events in § 98.233(f), (g), (h), (i), and (w).

(iii) Cumulative volume produced, volume input or output, or volume of fuel used in paragraphs § 98.233(d), (e), (j), (k), (l), (m), (n), (x), (y), and (z).

(4) *Best available monitoring methods for leak detection and measurement.* The

owner or operator may request use of best available monitoring methods between January 1, 2011 and December 31, 2011 for sources requiring leak detection and/or measurement. These sources include:

(i) Reciprocating compressor rod packing venting in onshore natural gas processing, onshore natural gas transmission compression, underground natural gas storage, LNG storage, and LNG import and export equipment as specified in § 98.232(d)(1), (e)(1), (f)(1), (g)(1), and (h)(1).

(ii) Centrifugal compressor wet seal oil degassing venting in onshore natural gas processing, onshore natural gas transmission compression, underground natural gas storage, LNG storage, and LNG import and export equipment as specified in § 98.232(d)(2), (e)(2), (f)(2), (g)(2), and (h)(2).

(iii) Acid gas removal vent stacks in onshore petroleum and natural gas production and onshore natural gas processing as specified in § 98.232(c)(17) and (d)(6).

(iv) Equipment leak emissions from valves, connectors, open ended lines, pressure relief valves, block valves, control valves, compressor blowdown valves, orifice meters, other meters, regulators, vapor recovery compressors, centrifugal compressor dry seals, and/or other equipment leaks in onshore natural gas processing, onshore natural gas transmission compression, underground natural gas storage, LNG storage, LNG import and export equipment, and natural gas distribution as specified in § 98.232(d)(7), (e)(7), (f)(5), (g)(3), (h)(4), and (i)(1).

(v) Condensate (oil and/or water) storage tanks in onshore natural gas transmission compression as specified in § 98.232(e)(3).

(5) *Requests for the use of best available monitoring methods.* The owner or operator may submit a request to the Administrator to use one or more best available monitoring methods.

(i) No request or approval by the Administrator is necessary to use best available monitoring methods between January 1, 2011 and September 30, 2011 for the sources specified in paragraph (f)(2) of this section.

(ii) No request or approval by the Administrator is necessary to use best

available monitoring methods between January 1, 2011 and September 30, 2011 for sources specified in paragraph (f)(3) of this section.

(iii) Owners or operators must submit a request and receive approval by the Administrator to use best available monitoring methods between January 1, 2011 and December 31, 2011 for sources specified in paragraph (f)(4) of this section.

(A) *Timing of Request.* The request to use best available monitoring methods for paragraph (f)(4) of this section must be submitted to EPA no later than July 31, 2011.

(B) *Content of request.* Requests must contain the following information for sources listed in paragraph (f)(4) of this section:

(1) A list of specific source types and specific equipment, monitoring instrumentation, and/or services for which the request is being made and the locations where each piece of monitoring instrumentation will be installed or monitoring service will be supplied.

(2) Identification of the specific rule requirements (by subpart, section, and paragraph number) for which the instrumentation or monitoring service is needed.

(3) Documentation which demonstrates that the owner or operator made all reasonable efforts to obtain the information, services or equipment necessary to comply with subpart W reporting requirements, including evidence of specific service or equipment providers contacted and why services or information could not be obtained during 2011.

(4) A description of the specific actions the facility will take to obtain and/or install the equipment or obtain the monitoring service as soon as reasonably feasible and the expected date by which the equipment will be obtained and operating or service will be provided.

(C) *Approval criteria.* To obtain approval, the owner or operator must demonstrate to the Administrator's satisfaction that it does not own the required monitoring equipment, and it is not reasonably feasible to acquire, install, and operate a required piece of monitoring equipment or to obtain

leak detection or measurement services in order to meet the requirements of this subpart for 2011.

(iv) EPA does not anticipate a need to approve the use of best available monitoring methods for sources not listed in paragraphs (f)(2), (f)(3), and (f)(4) of this section; however, EPA will review such requests if submitted in accordance with paragraph (f)(5)(iv)(A)–(C) of this section.

(A) *Timing of Request.* The request to use best available monitoring methods for sources not listed in paragraph (f)(2), (f)(3), and (f)(4) of this section must be submitted to EPA no later than July 31, 2011.

(B) *Content of request.* Requests must contain the following information:

(1) A list of specific source categories and parameters for which the owner or operator is seeking use of best available monitoring methods.

(2) A description of the data collection methodologies that do not meet safety regulations, technical infeasibility, or specific laws or regulations that conflict with each specific source for which an owner or operator is requesting use of best available monitoring methodologies.

(3) A detailed explanation and supporting documentation of how and when the owner or operator will receive the services or equipment to comply with all subpart W reporting requirements.

(C) *Approval criteria.* To obtain approval, the owner or operator must demonstrate to the Administrator's satisfaction that the owner or operator faces unique safety, technical or legal issues rendering them unable to meet the requirements of this subpart for 2011.

(6) *Requests for extension of the use of best available monitoring methods through December 31, 2011 for sources in paragraph (f)(2) of this section.* The owner or operator may submit a request to the Administrator to use one or more best available monitoring methods described in paragraph (f)(2) of this section beyond September 30, 2011.

(i) *Timing of Request.* The extension request must be submitted to EPA no later than July 31, 2011.

(ii) *Content of request.* Requests must contain the following information:

(A) A list of specific source types and specific equipment, monitoring instrumentation, contract modifications, and/or services for which the request is being made and the locations where each piece of monitoring instrumentation will be installed, monitoring service will be supplied, or contracts will be modified.

(B) Identification of the specific rule requirements (by subpart, section, and paragraph number) for which the instrumentation, contract modification, or monitoring service is needed.

(C) A description and applicable correspondence outlining the diligent efforts of the owner or operator in obtaining the needed equipment or service and why they could not be obtained and installed in a period of time enabling completion of applicable requirements of this subpart within the 2011 calendar year.

(D) If the reason for the extension is that the owner or operator cannot collect data from a service provider or relevant organization in order for the owner or operator to meet requirements of this subpart for the 2011 calendar year, the owner or operator must demonstrate a good faith effort that it is not possible to obtain the necessary information, service or hardware which may include providing correspondence from specific service providers or other relevant entities to the owner or operator, whereby the service provider states that it is unable to provide the necessary data or services requested by the owner or operator that would enable the owner or operator to comply with subpart W reporting requirements by September 30, 2011.

(E) A description of the specific actions the owner or operator will take to comply with monitoring requirements in 2012 and beyond.

(iii) *Approval criteria.* To obtain approval, the owner or operator must demonstrate to the Administrator's satisfaction that it is not reasonably feasible to obtain the data necessary to meet the requirements of this subpart for the sources specified in paragraph (f)(2) of this section by September 30, 2011.

(7) *Requests for extension of the use of best available monitoring methods through December 31, 2011 for sources in*

paragraph (f)(3) of this section. The owner or operator may submit a request to the Administrator to use one or more best available monitoring methods described in paragraph (f)(3) of this section beyond September 30, 2011.

(i) *Timing of request.* The extension request must be submitted to EPA no later than July 31, 2011.

(ii) *Content of request.* Requests must contain the following information:

(A) A list of specific source types for which data collection could not be implemented.

(B) Identification of the specific rule requirements (by subpart, section, and paragraph number) for which the data collection could not be implemented.

(C) A description of the data collection methodologies that do not meet safety regulations, technical infeasibility, or specific laws or regulations that conflict with each specific source for which an owner or operator is requesting use of best available monitoring methodologies for which data collection could not be implemented in the 2011 calendar year.

(iii) *Approval criteria.* To obtain approval, the owner or operator must demonstrate to the Administrator's satisfaction that is not reasonably feasible to implement the data collection for the sources described in paragraph (f)(3) of this section for the methods required in this subpart by September 30, 2011.

(8) *Requests for extension of the use of best available monitoring methods beyond 2011 for sources listed in paragraphs (f)(2), (f)(3), (f)(4), (f)(5)(iv) of this section and other sources in this subpart.* EPA does not anticipate a need for approving the use of best available methods beyond December 31, 2011, except in extreme circumstances, which include safety, a requirement being technically infeasible or counter to other local, State, or Federal regulations.

(i) *Timing of request.* The request to use best available monitoring methods for paragraphs (f)(2), (f)(3), (f)(4), (f)(5)(iv) of this section and sources not listed in paragraphs (f)(2), (f)(3), (f)(4), (f)(5)(iv) of this section must be submitted to EPA no later than September 30, 2011.

(ii) *Content of request.* Requests must contain the following information:

(iii) A list of specific source categories and parameters for which the owner or operator is seeking use of best available monitoring methods.

(iv) A description of the data collection methodologies that do not meet safety regulations, technical infeasibility, or specific laws or regulations that conflict with each specific source for which an owner or operator is requesting use of best available monitoring methodologies.

(v) A detailed explanation and supporting documentation of how and when the owner or operator will receive the services or equipment to comply with all of this subpart W reporting requirements.

(C) *Approval criteria.* To obtain approval, the owner or operator must demonstrate to the Administrator's satisfaction that the owner or operator faces unique safety, technical or legal issues rendering them unable to meet the requirements of this subpart.

[75 FR 74488, Nov. 30, 2010, as amended at 76 FR 22827, Apr. 25, 2011]

§ 98.235 Procedures for estimating missing data.

A complete record of all estimated and/or measured parameters used in the GHG emissions calculations is required. If data are lost or an error occurs during annual emissions estimation or measurements, you must repeat the estimation or measurement activity for those sources as soon as possible, including in the subsequent calendar year if missing data are not discovered until after December 31 of the year in which data are collected, until valid data for reporting is obtained. Data developed and/or collected in a subsequent calendar year to substitute for missing data cannot be used for that subsequent year's emissions estimation. Where missing data procedures are used for the previous year, at least 30 days must separate emissions estimation or measurements for the previous year and emissions estimation or measurements for the current year of data collection. For missing data which are continuously monitored or measured, (for example flow meters), or for missing temperature or pressure data that are required under § 98.236, the reporter may use best available